

## PATENT COOPERATION TREATY


## PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference G68723 CK.be	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/AT 0200793	International filing date (day/month/year) 16.12.2002	Priority date (day/month/year) 30.10.2002
International Patent Classification (IPC) or both national classification and IPC F25B15/02		
Applicant ROBUR S.P.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  12.02.2004	Date of completion of this report  19.01.2005
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Szilagyi, B Telephone No. +49 89 2399-7157



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/IT 02/00793**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

**Description, Pages**

1-8 as originally filed

**Claims, Numbers**

1-15 as originally filed

**Drawings, Sheets**

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	1-15
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

- 1 Reference is made to the following documents:

D1: US-A-4 437 321 (ASAI SETSURO) 20 March 1984 (1984-03-20)

D2: WO 01/50075 A (ROCKY RES) 12 July 2001 (2001-07-12)

- 2.1 Document D1 discloses (cf. column 6, line 4 column 7, line 68 and figure 1) a cooling or heating device in an absorption heat pump, comprising a generator (1), an absorber (3, 5), a condenser (2, 4), an evaporator (2, 3, 4, 5), a pump (6) connected to said absorber and generator, a first circuit (101-128) for the refrigerant solution circulating through the device and connecting together at least said generator, absorber, condenser, evaporator and pump, and valve means (13-18) for modifying said first circuit in such a manner as to vary the manner in which evaporator, absorber, condenser and evaporator are connected together; characterised by comprising at least a first and a second heat exchange means (2,3,4,5) arranged to enable at least one phase of the solution circulating through said means to be changed and to enable thermal energy to be exchanged against an external fluid, said first and second heat exchange means each comprising at least two mutually separate sub-heat exchangers (2-3, 4-5) arranged to function either as an evaporator or as an absorber and condenser, depending on the operating mode of the device.

Thus, the apparatus defined in independent claim 1 differs from that disclosed in Document D1 in that the apparatus contains a GAX heat exchanger as well.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

- 2.2 The technical problem to be solved by the invention was to improve the efficiency of an absorption heat pump by recovering absorption heat from the absorber.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: GAX type sorption refrigeration cycles (cycles having heat exchange circuit between a generator and an absorber) have been known and widely used since the beginning of the 19th century. However, it is not obvious how a skilled person should provide the apparatus of D1 with a GAX heat exchanger.

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- 2.3 Claims 2-13 are dependent on claim 1 and claims 14 and 15 are method claims using the apparatus of claims 1-13 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 3 The industrial applicability of the claimed invention is obvious.
- 4 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.